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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

ALBERTALLI, BRIAN LOUIS

ART UNIT PAPER NUMBER

2655

DATE MAILED: 07/12/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/942,609

Applicant(s)

RIIS ET AL.

Examiner

Brian L. Albertalli

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 May 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3,4,7-9,12 and 13 is/are rejected.
- 7) ☒ Claim(s) 2,5,6,10 and 11 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on April 11, 2005 has been entered.

Response to Arguments

2. Applicant's arguments filed April 11, 2005 have been fully considered but they are not persuasive.

With respect to the rejections of independent claims 1, 4, and 9, the Examiner submits that the term "branched grammar" is not a well-known or widely used term in the art. Therefore, for the purposes of examination, the Examiner has broadly interpreted the term "branched grammar" as —a technique for capturing all pronunciations that are allowed in the set of languages supported by the multilingual recognition system—in accordance with the specification (see page 8, line 30 through page 9, line 3).

Given this interpretation, the Examiner submits that the limitation of "determined by the use of a branched grammar" is suggested by Wheatley et al. because Wheatley

et al. disclose the generation of several phonetic sequences corresponding to different pronunciations (column 4, lines 26-36).

Wheatley et al. do not disclose that the different pronunciations generated from multilingual phoneme symbols, however, the International Phonetic Alphabet is very well known in the art. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Wheatley et al. so that the different pronunciations generated were representative of pronunciations in a plurality of languages, so that the method could be used in different countries.

The Examiner further submits that if the definition of "branched grammar" was more strictly defined in the claims by incorporating the limitations of dependent claims 2, 5, and, 10 into independent claims 1, 4, and 9, respectively, independent claims 1, 4, and 9 would be allowable over the prior art of record. The prior art of record does not disclose and would not suggest to one of ordinary skill in the art at the time of invention generating pronunciations with a branched grammar that processes text input letter by letter with a neural network that provides an estimate of the posterior probabilities of the different multilingual phonemes for each letter.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

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invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1, 3, 4, 7, 8, 9, 12, and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wheatley et al. (U.S. Patent 5,212,730).

In regard to claim 1, Wheatley et al. discloses a method of recognizing speech using text derived recognition models.

Text is provided from a text database (Fig. 1, element 12) (column 4, lines 8-16).

An acoustic input (24) accepts spoken input (column 4, lines 55-57).

Sequences of phoneme symbols based on the text input are generated by a text to phoneme module (Boltzmann machine 13, column 4, lines 17-25).

Pronunciations are produced in response to the sequences of phoneme symbols (HMM recognition model generator (16) generates HMM recognition models based on phonetic models derived from a speech database (18, column 4, lines 44-54)).

The pronunciations are compared with the acoustic input in order to find a match (by HMM recognition engine 26, column 4 lines 58-68).

Wheatley et al. further discloses that the method generates several phonetic sequences corresponding to different pronunciations (column 4, lines 26-36). Wheatley et al. does not disclose that the phoneme symbols are multilingual phoneme symbols. The use of the International Phonetic Alphabet is very well known in the art. It would have been obvious to one of ordinary skill in the art at the time of invention to modify Wheatley et al. so that the different pronunciations generated were representative of pronunciations in a plurality of languages, so that the method could be used in different countries.

In regard to claims 4 and 9, Wheatley et al. discloses a system that has:

- a text database (Fig. 1, element 14) for providing text input;
- a transducer means (24) for receiving an acoustic input;
- a text to phoneme module (13) that generates sequences of phoneme signals;
- a pronunciation lexicon module (16) that generates pronunciations in response to the sequences of phoneme signals;
- and a recognizer (26) for comparing the pronunciations generated by the pronunciation lexicon module (16) with the acoustic input.

Wheatley et al. further discloses that generates several phonetic sequences corresponding to different pronunciations (column 4, lines 26-36). Wheatley et al. does not disclose that the phoneme symbols are multilingual phoneme symbols. The use of the International Phonetic Alphabet is very well known in the art. It would have been obvious to one of ordinary skill in the art at the time of invention to modify Wheatley et al. so that the different pronunciations generated were representative of pronunciations in a plurality of languages, so that the method could be used in different countries.

Wheatley et al. does not disclose the system is implemented in a communication terminal. It would have been obvious to one of ordinary skill in the art at the time of invention to implement the system in a communication terminal, in order to communicate to another communication terminal without using any keystrokes (e.g. the system could be used for hands free dialing).

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In regard to claims 3, 7, and 12, Wheatley et al. discloses that the text input is derived from user entered text strings (column 4, lines 8-11).

In regard to claim 8 and 13, Wheatley et al., does not disclose that the database containing user entered text strings is an electronic phonebook including phone numbers and name labels. It would have been obvious to one of ordinary skill in the art at the time of invention to make the text database an electronic phonebook database so one could find phone numbers of people quickly and easily via a speech command, without using text entry.

Allowable Subject Matter

5. Claims 2, 3, 5, 6, 10, and 11 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

As discussed above in the Response to Arguments heading, the prior art of record does not disclose or suggest the use of a branched grammar wherein a branched grammar is defined as a model for processing text input letter by letter with a neural network that provides an estimate of the posterior probabilities of the different multilingual phonemes for each letter.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Sproat (*Multilingual Text Analysis for Text-to-Speech Synthesis*) discloses a method for generating multilingual phoneme symbols from text using a finite state transducer. Lee et al. (U.S. Patent Application Publication 2002/0087317) disclose a method for generating various accents from textual data using a neural network. Kienappal et al. (U.S. Patent Application Publication 2002/0040296) discloses a method for generating pronunciations from textual data using a multilingual phoneme set.


7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian L. Albertalli whose telephone number is (571) 272-7616. The examiner can normally be reached on Mon - Fri, 8:00 AM - 5:30 PM, every second Fri off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wayne Young can be reached on (571) 272-7582. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

BLA 7/7/05


SUSAN MCFADDEN
PRIMARY EXAMINER